



Michigan State Police Retirement System

Pension Actuarial Valuation Results
as of September 30, 2013



Gabriel Roeder Smith & Company
Consultants & Actuaries
www.gabrielroeder.com

Actuarial Valuation Process

Member Data

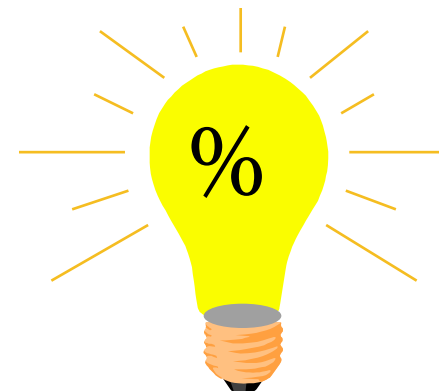


Financial Data



**Actuarial
Valuation**

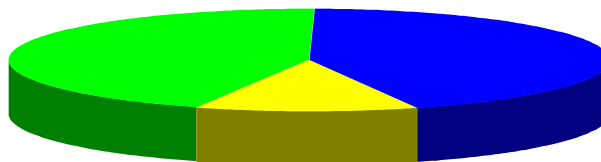
Actuarial Assumptions

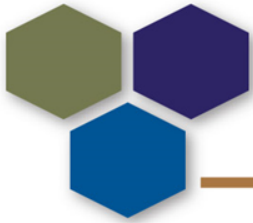


Plan Provisions

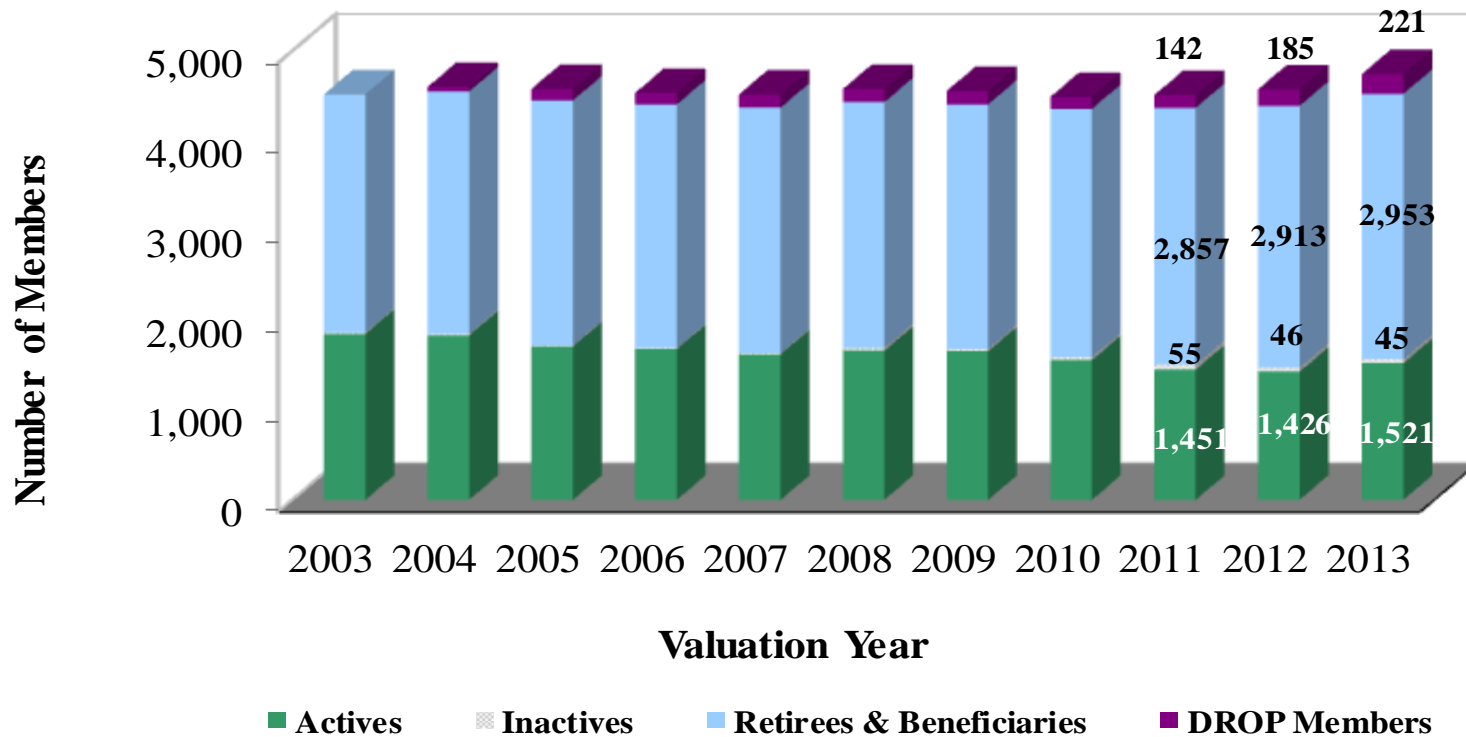


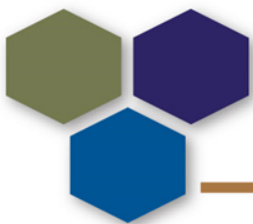
Actuarial Cost Method



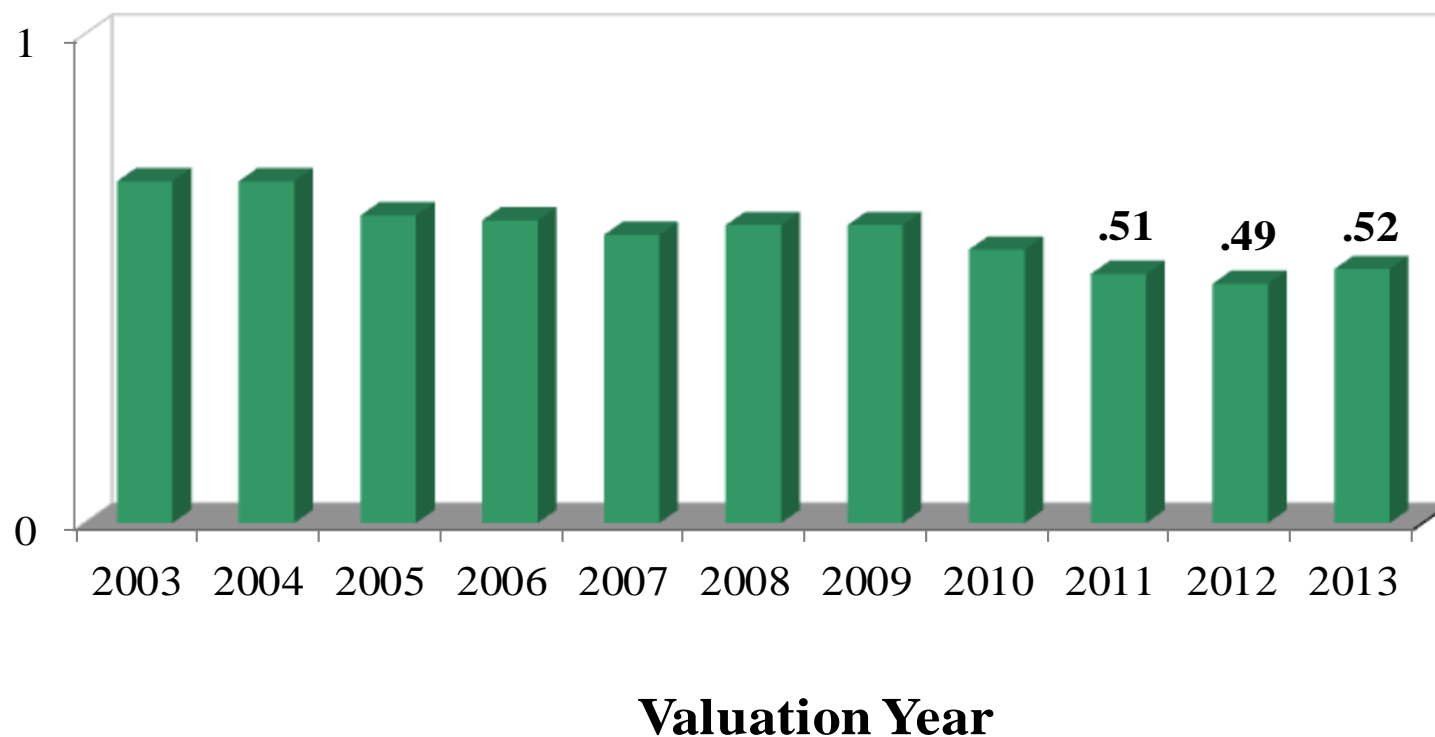


Membership Data



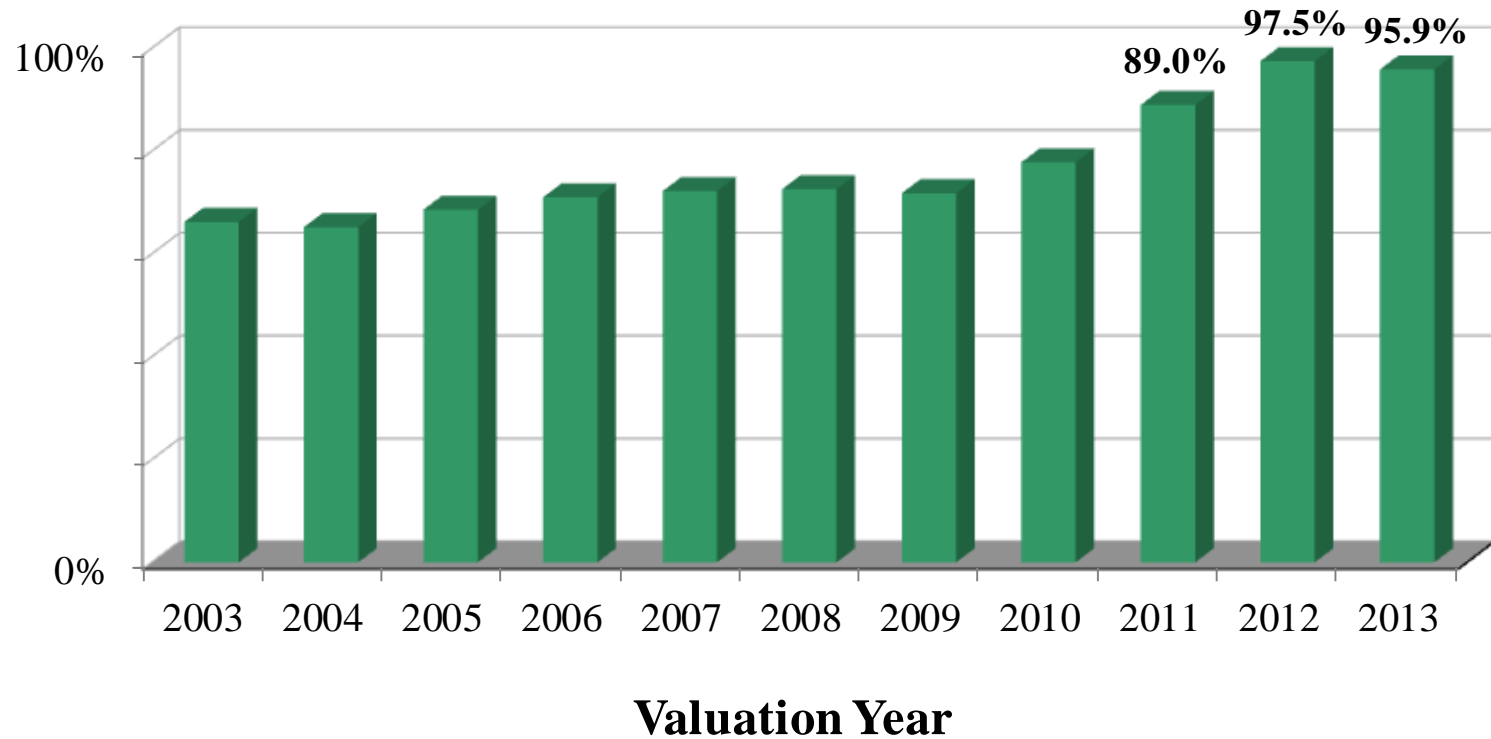


Ratio of Active Members to Pension Benefit Recipients



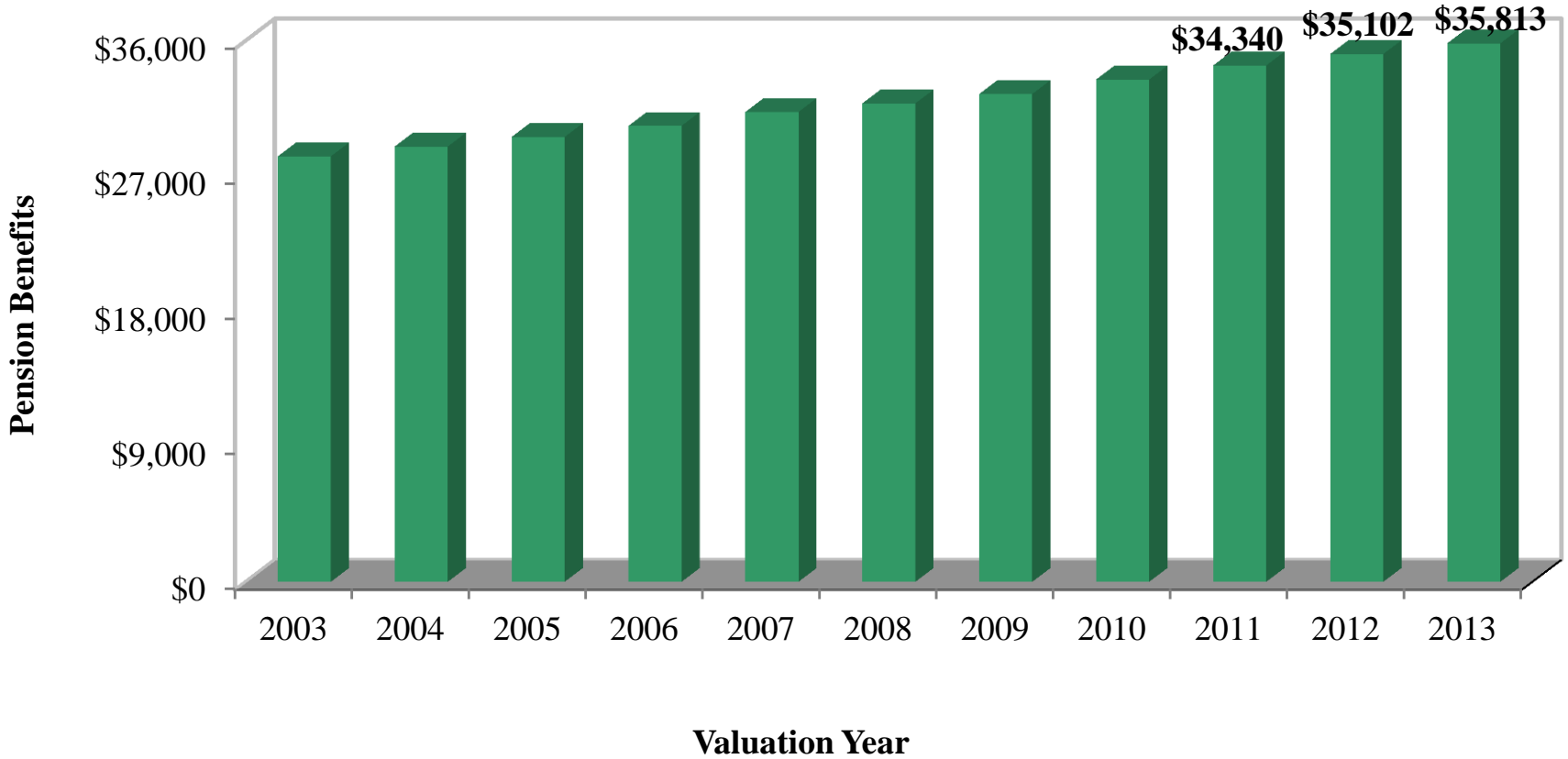


Pension Benefits Expressed as %'s of Active Member Pay



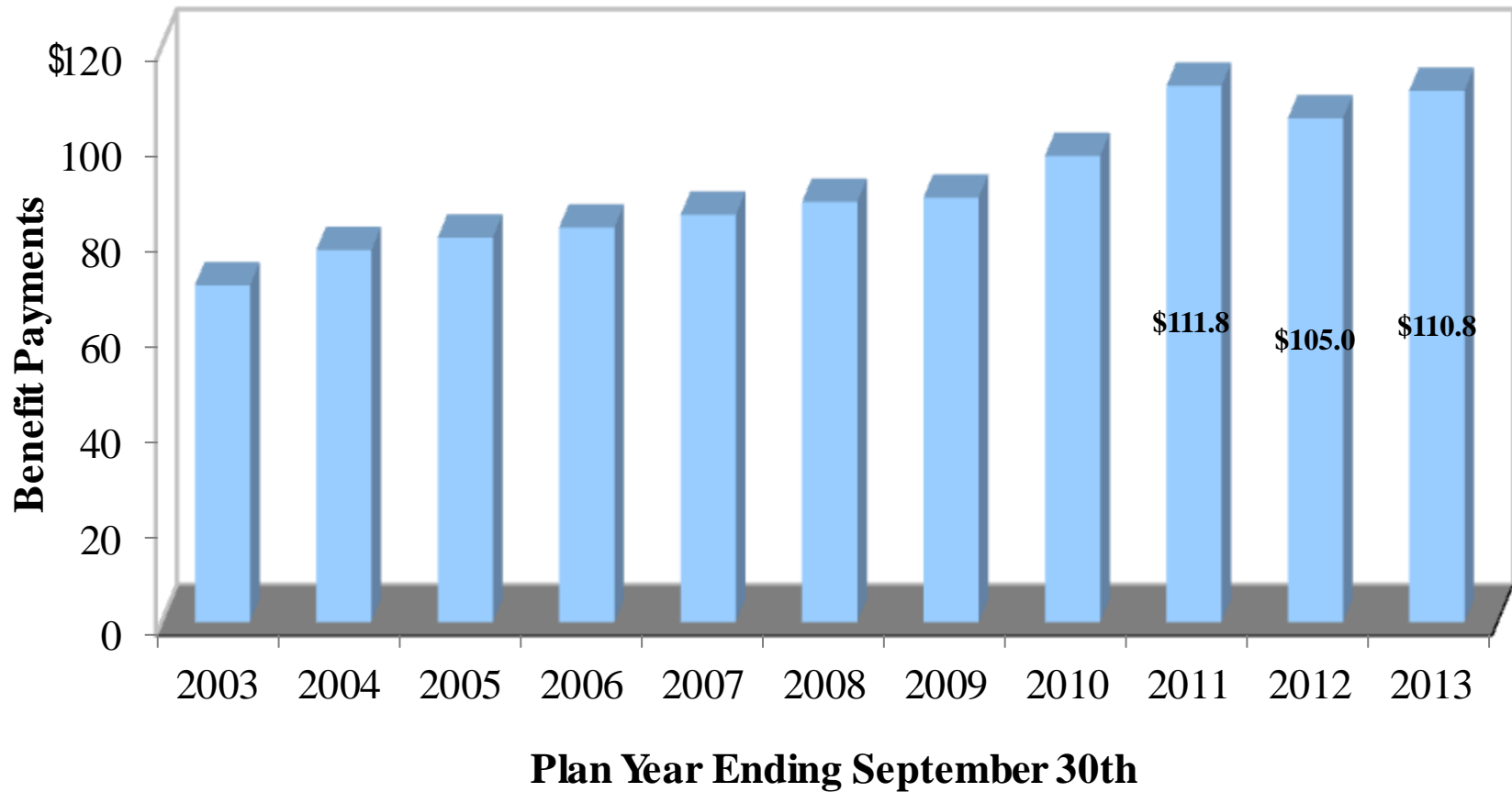


Average Annual Pensions as of September 30th of the Indicated Valuation Year





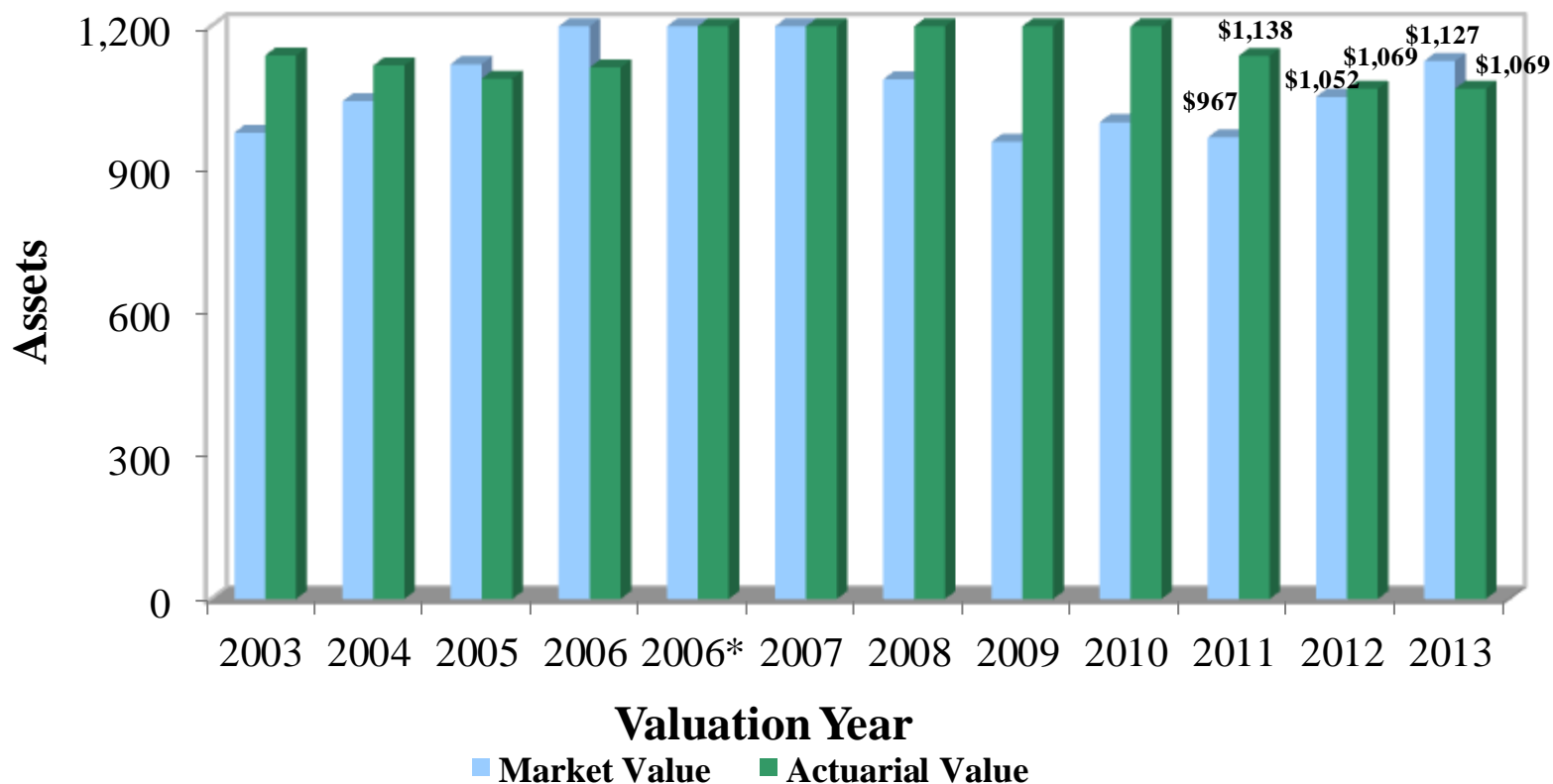
Actual Pension Benefit Payments by Fiscal Year (Amounts in Millions)





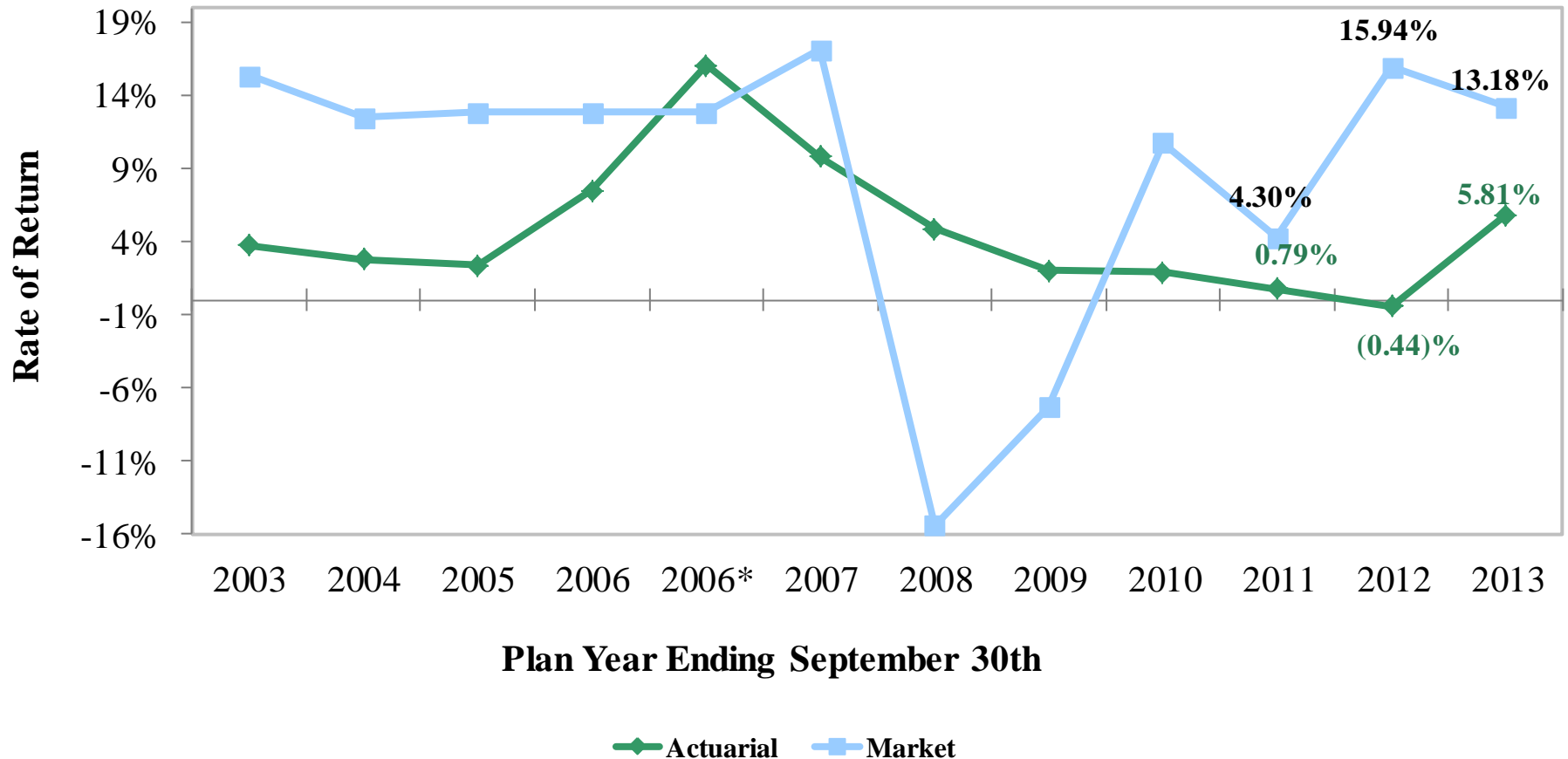
Pension Assets

(Amounts in Millions)



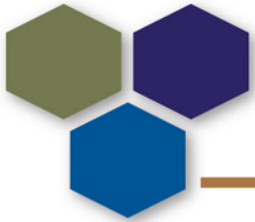
* After adjusting to market value.

Actuarial & Market Net Rates of Return[#]



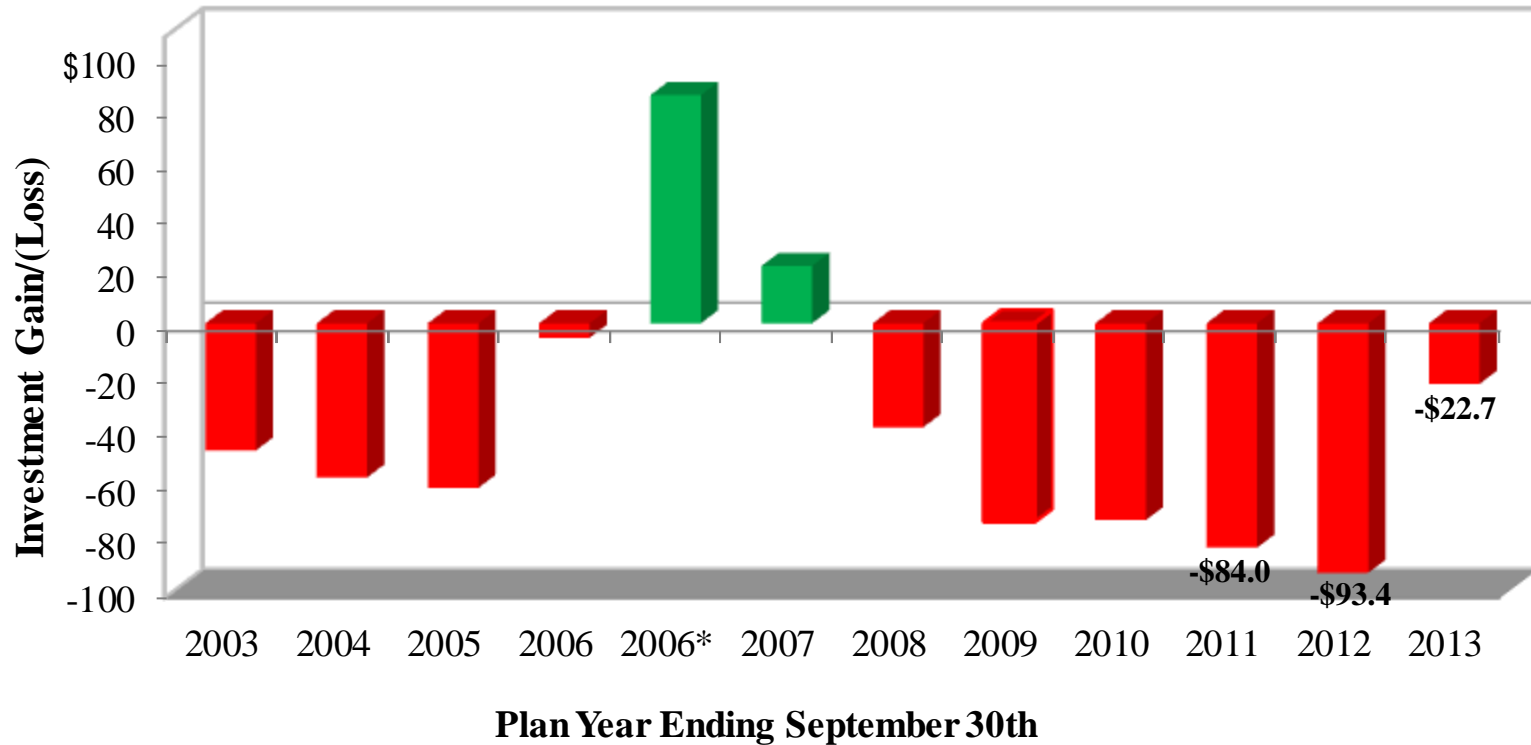
* After adjusting to market value.

[#]Rates of return on Non Hybrid assets



Investment Gain/(Loss)

(Amounts in Millions)

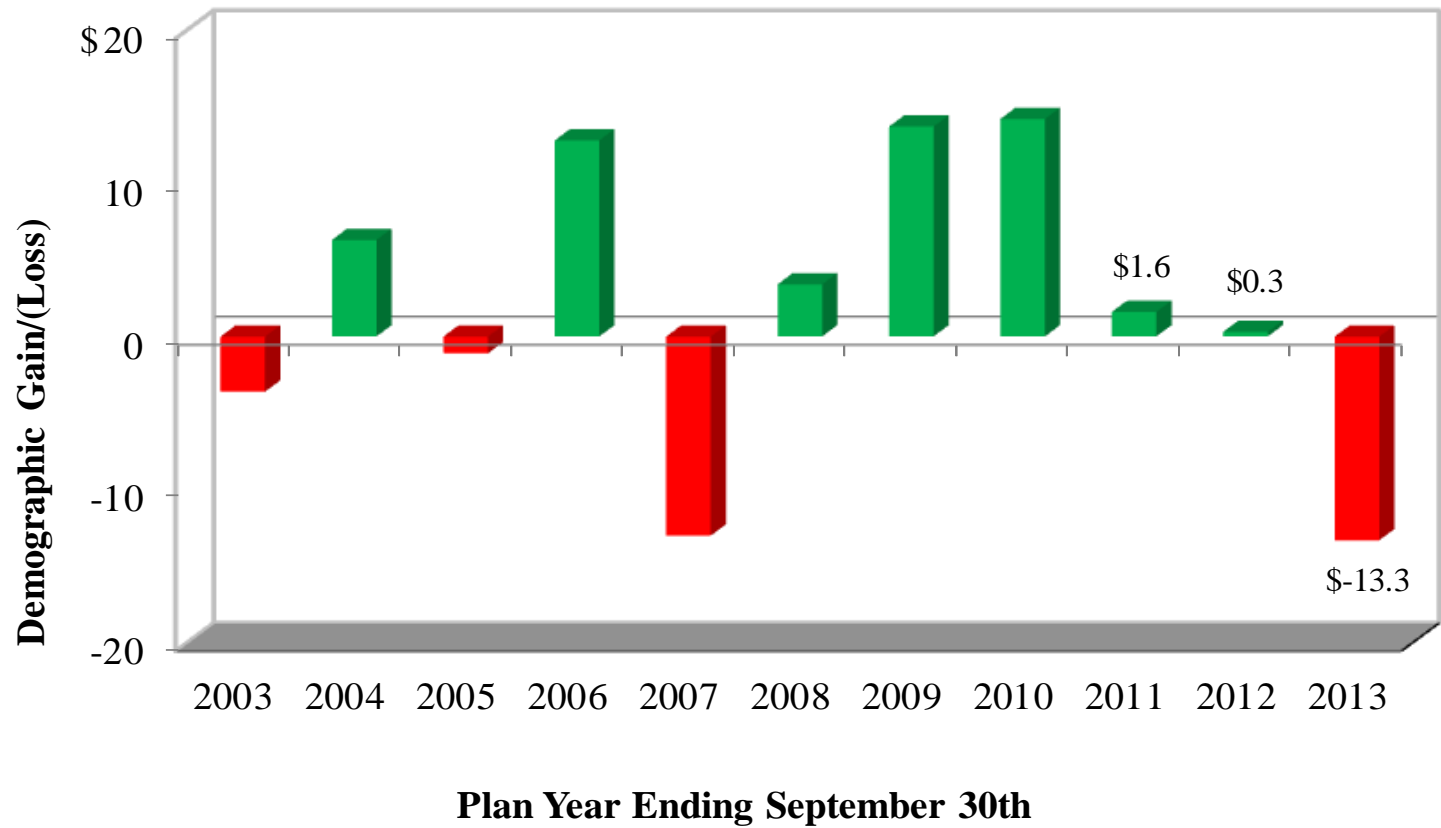


* After adjusting to market value.



Demographic Gain/(Loss)

(Amounts in Millions)





Gain/(Loss) by Type of Activity

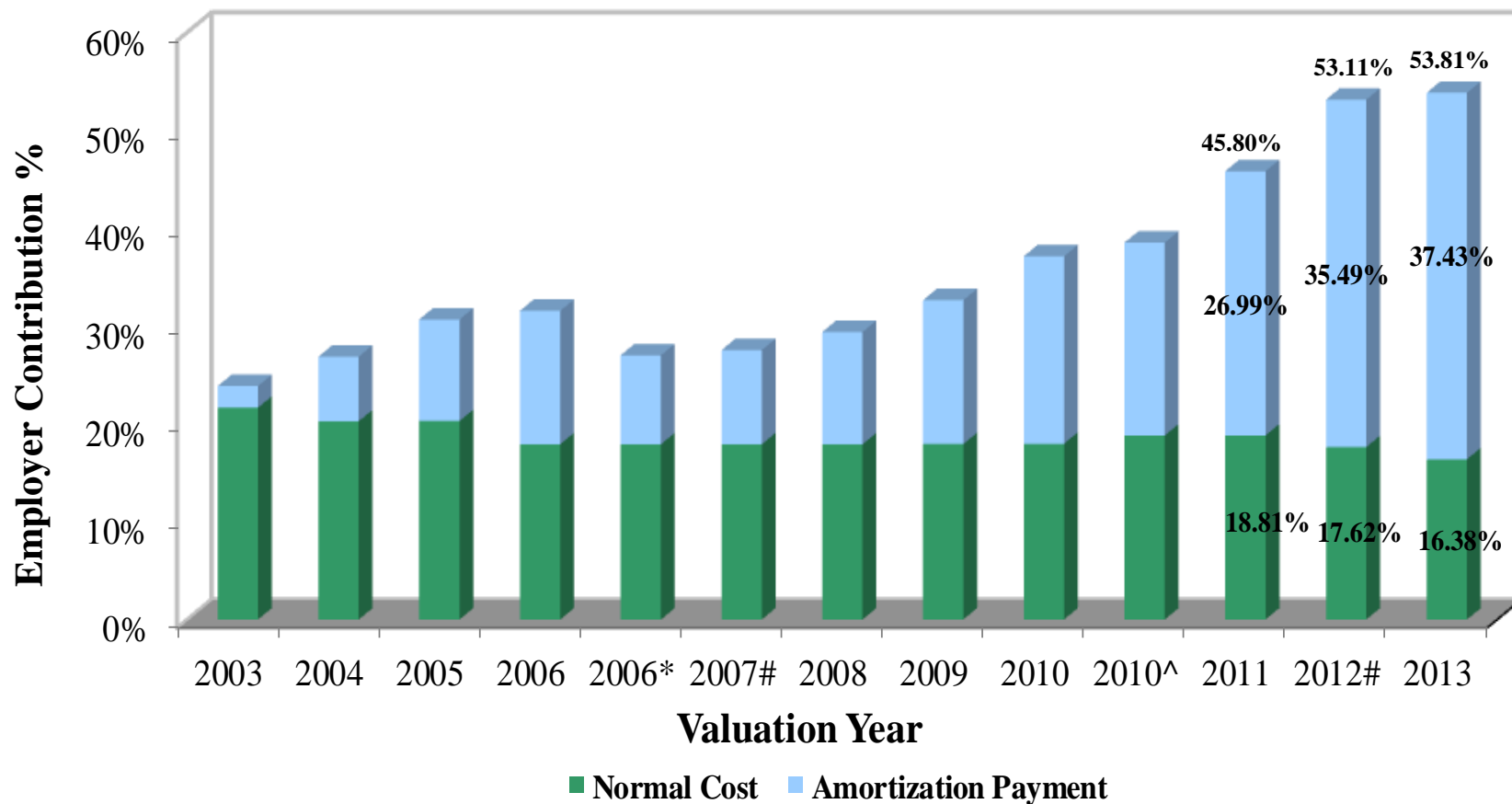
(Amounts in Millions)

Plan Year Ending 9/30	2013	2012	2011	2010	2009	2008
New Entrants *	0.00	(0.73)	(0.89)	(0.18)	(0.83)	(0.16)
Retiree Deaths	(6.34)	(5.57)	(5.38)	0.56	(1.68)	(3.98)
Investments	(22.72)	(93.39)	(84.04)	(73.67)	(74.30)	(38.88)
Pay Increases	(1.34)	11.94	11.74	11.17	13.08	3.74
Withdrawal	0.36	(0.02)	0.37	0.90	0.43	2.44
Retirements	(1.80)	(2.40)	(2.64)	(1.80)	2.17	1.15
Other	(4.20)	(2.93)	(1.58)	3.55	0.52	0.20
Total	(36.04)	(93.10)	(82.42)	(59.47)	(60.61)	(35.49)

* New entrants with past service (rehires).



Historical Employer Contribution %'s Valuation as of September 30



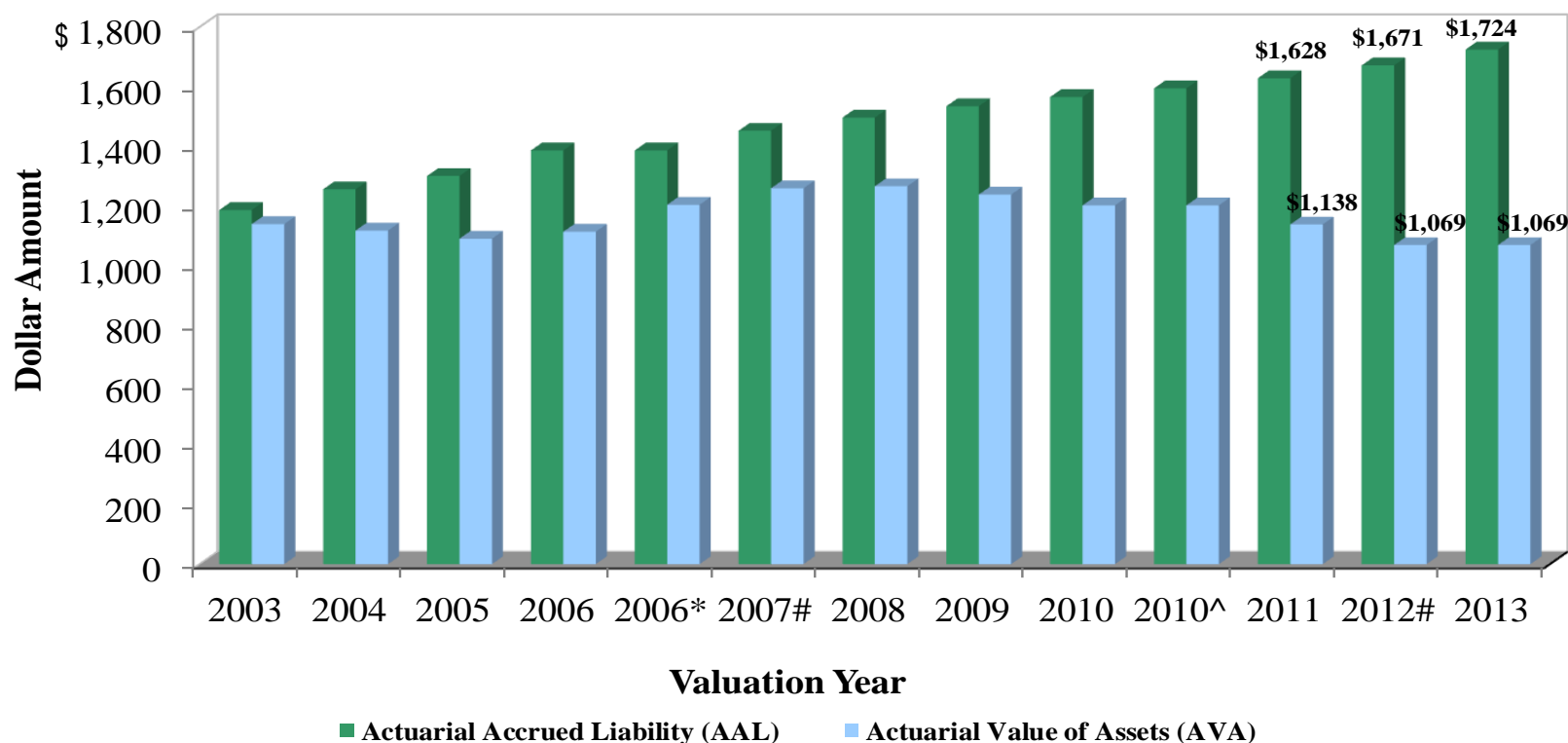
* After adjusting to market value.

Revised benefit provisions.

^ Revised actuarial assumptions.



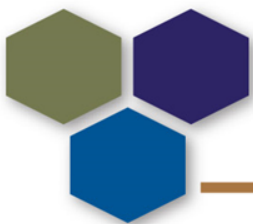
Actuarial Accrued Liability Compared to Actuarial Value of Assets (in millions)



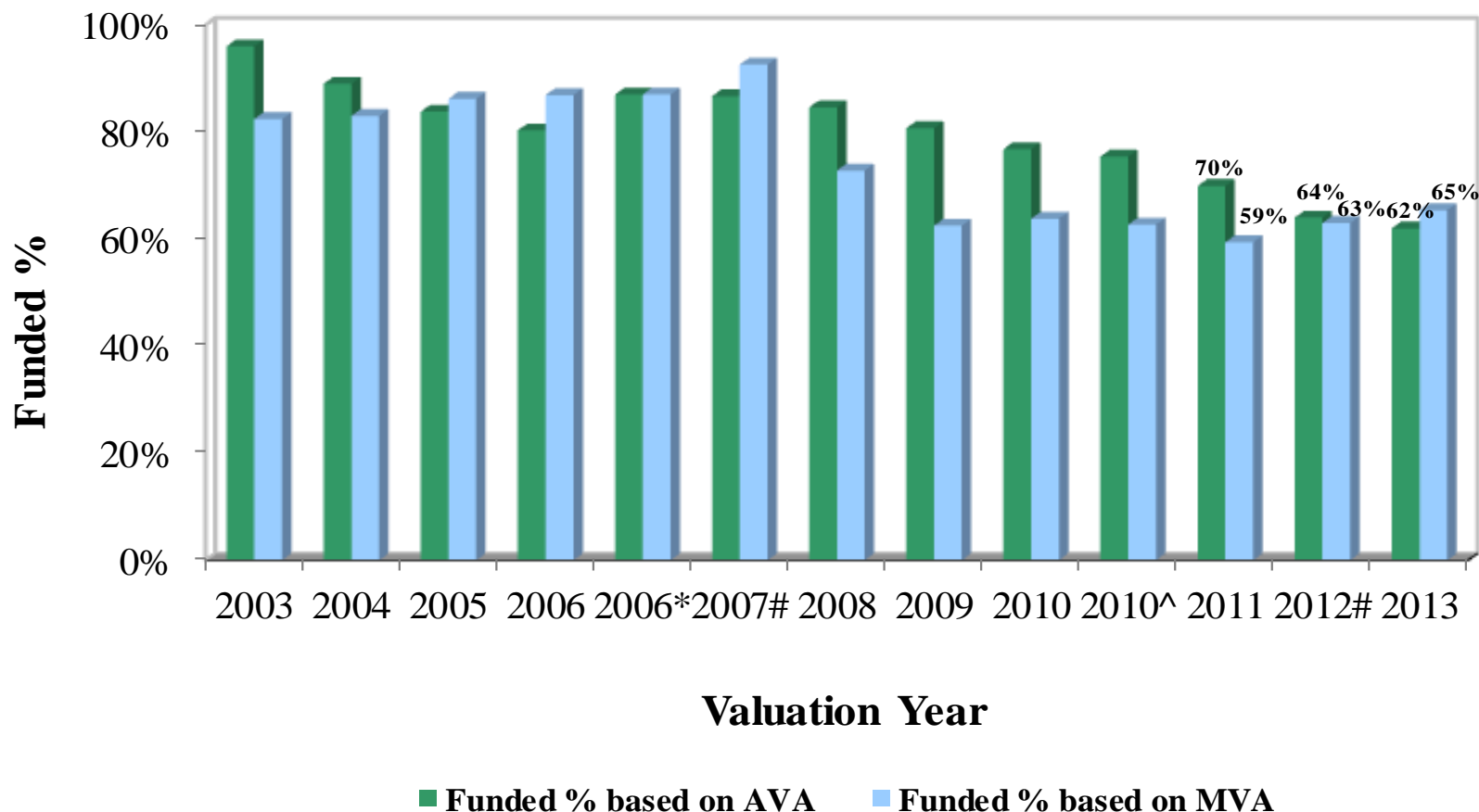
* After adjusting to market value.

Revised benefit provisions.

^ Revised actuarial assumptions.



Retirement System Funded % Based on Actuarial Value and Market Value of Assets

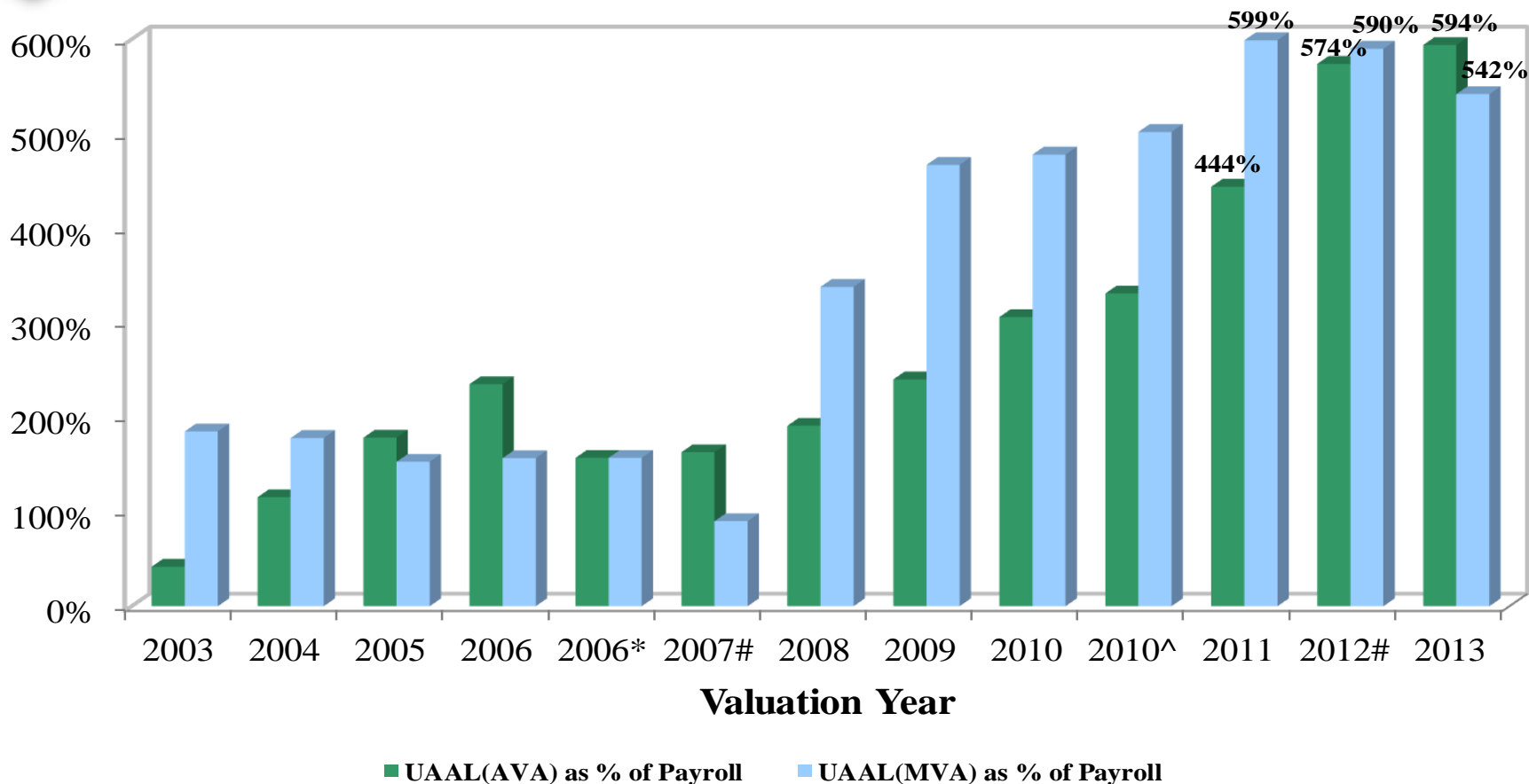


* After adjusting to market value.

Revised benefit provisions.

^ Revised actuarial assumptions.

Unfunded as Percentage of Payroll



* After adjusting to market value.

Revised benefit provisions.

^ Revised actuarial assumptions



Comments on the Investment Markets

- ◆ Investment markets have been very volatile
- ◆ Valuation is based on a 5-year smoothed value of assets
 - ▶ Reduces the volatility of the valuation results
- ◆ 9/30/13 smoothed value of assets was lower than market value
 - ▶ Market losses from 2008-2009 are completely recognized
 - ▶ Provides some margin for possible adverse investment experience over the next few years



Disclaimers

- ◆ This presentation is intended to be used in conjunction with the September 30, 2013 pension annual actuarial valuation report issued on June 24, 2014. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
- ◆ Circular 230 Notice: Pursuant to regulations issued by the IRS, to the extent this presentation concerns tax matters, it is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) marketing or recommending to another party any tax-related matter addressed within. Each taxpayer should seek advice based on the individual's circumstances from an independent tax advisor.
- ◆ This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- ◆ The actuaries submitting this presentation (Mita Drazilov and Louise Gates) are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.